

REMARKS

I. Response to Restriction Requirement and Election:

In the Office Action, the Examiner held that the application contains seven groups of claims drawn to the following seven different inventions:

Group I, (claims 1-4, 6-10, 12-17, 39-44, 50 and 52), drawn to a method of altering cellulose content and lignin structure using 4-coumarate Co enzyme A ligase operably linked to 35S CaMV promoter.

Group II, claim(s) 1-5, 10-11, 18-28, 51 and 53 drawn to a method of increasing growth, decreasing lignin content, altering lignin structure and increasing cellulose content using 4-coumarate Co enzyme A ligase in antisense orientation.

Group III, claim(s) 33-37 drawn to a method of altering growth and disease resistance using 4-coumarate Co enzyme A ligase in antisense orientation and transgenic plant.

Group IV, claim(s) 38 and 49 drawn to a transgenic plant comprising a recombinant DNA comprising 4-coumarate Co enzyme A ligase, a method of altering levels of phenylpropanoids or other secondary metabolites and a method to increase disease resistance.

Group V, claim(s) 29-31, and 45-46 drawn to a promoter expressing in xylem tissues and transgenic plant.

Group VI, claim 48, drawn to a xylem expressing promoter and a method for altering lignin content, lignin structure, cellulose content or wood quality.

Group VII claim(s) 29-30, 32, 45 and 47 drawn to a promoter expressing in epidermal cells and transgenic plant.

Applicants provisionally elect, with traverse, Group V, corresponding to claim(s) 29-31, and 45-46 drawn to a promoter expressing in xylem tissues and

transgenic plant. Applicants respectfully submit, however, that the restriction requirement is improper, and request reconsideration thereof.

A proper requirement for restriction requires that: (1) the inventions must be independent or distinct as claimed; and (2) there must be a serious burden on the Examiner if restriction is not required (MPEP §803). Applicants note that the Examiner has not given any class or subclass for the asserted groups of inventions. Applicants can only presume that there are no distinctions as to class and subclass that would be required for searching. Thus, Applicants respectfully submit there would be no serious burden on the Examiner if restriction were not required.

Furthermore, Groups I – VII are all directed to the 4-coumarate co-enzyme genes involved in the phenyl-propanoid pathway and specifically, in the manipulation of these 4CL isoforms to obtain altered plant characteristics and to obtain tissue-specific expression through the use of their 4CL promoters.

Applicants respectfully request withdrawal of the restriction requirement or, in the alternative, consideration of elected claims 29-31, 45-46 (Group V), and newly added claims 54-77 on the merits.

II. Newly Added Claims:

With the entry of the foregoing new claims, claims 1-77 are pending in the present application. Applicants have added newly presented claims 54-77, drawn to the invention, provisionally elected herein (i.e., Group V). Applicants respectfully submit that new independent claims 54-77 have been added herein for clarification purposes only and do not present any new issues. Applicants also submit that new claims 54-77 are all fully supported by the contents of the specification, as originally filed.

Applicants submit that the newly added claims 54-77 are all directed to the transcriptional regulatory region or promoter of the lignin-related 4-coumarate Co-enzyme A ligase gene (i.e., 4CL1 gene) which can direct protein expression to the xylem-related tissues. Accordingly, no new matter has been added herein.

New claims 54-58 are dependent on independent claim 29 and are directed to "an isolated and purified DNA molecule." New claims 59-66 are dependent on

independent claim 45 and are directed to "an expression cassette." New claims 68-70 are dependent on independent claim 67 and are directed to "a polynucleotide sequence." New claims 72-75 are dependent on independent claim 71 and are directed to "a polynucleotide sequence of SEQ ID NO: 5." New claim 77 is dependent on independent claim 76 and are directed to "a gene promoter." All of these newly added claims relate to the 4CL1 (Lignin-specific) promoter regulatory sequence elements thereof and its use to selectively target protein expression to xylem-specific tissues.

Specifically, support for the limitations provided in new claims 54-77 can be found, for example, in Fig. 2, which provides a diagram of Agrobacterium T-DNA gene construct pA4CL 1; Fig. 3, which provides a restriction map of genomic clone Pt4CL1g-4; and in Fig. 5, which provides a restriction map of subcloned pT4CL1 gene promoter p7Z-4XS. All of the figures were submitted as part of the originally filed specification.

Further support for the limitations provided in the newly added claims 54-77 can be found, for example, in the section entitled "I. Promoters" at page 26, line 15 through page 31, line 21 of the specification as originally filed. The section entitled "I. Promoters" provides extensive detail with respect to the 4CL1 promoter, its conserved regulatory elements, and gene constructs created with the 4CL1 promoter or fragments thereof. More specifically, the term "xylem-specific promoter" can be found for example at page 26, line 21. The phrase "SEQ ID NO: 5" can be found at page 27, line 26. Also, at page 28, lines 3-10, there is a discussion of the regulatory sequence elements contained in the 4CL1 5' flanking region (i.e., the three cis-acting elements, box P, box A and box L). Accordingly, Applicants respectfully submit that all of the newly added claims 54-77 are fully supported by the original application and no new matter was added to the application.

In summary, Applicants respectfully request reconsideration and withdrawal of the restriction requirement and in the alternative consideration of claims 29-31, 45-46 and claims 54-77, the invention asserted in the restriction requirement as Group V.

Applicants respectfully submit that the present application is in condition for allowance. A favorable action thereon is earnestly solicited. Should the Examiner

feel that any other point requires consideration or that the form of the claims can be improved, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



Sara D. Vinarov, J.D., Ph.D.
Reg. No. 48,524

File No. 66040-9651-01
Michael Best & Friedrich LLP
100 East Wisconsin Avenue
Milwaukee, WI 53202-4108
(608) 257-3501